SEQUENCE LISTING


<110> BIOPROTEIN TECHNOLOGIES

<120> PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF
      TRANSGENIC NON-HUMAN MAMMALS

<130> D21684

<150> EP 04/290 589
<151> 2004-03-04

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<170> PatentIn version 3.3

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atgttaacat caaatcttac tttcactgtt tactctgatc tgcttgcatt cgtatcggcc  2580
gatacagtag aacctataaa tgcagttgca tttgataata tgcgcatcat gaacgagttg  2640
taa                                                                 2643
```

<210> 6
<211> 2797
<212> DNA
<213> Artificial sequence

<220>
<223> VP2 strain RF open reading frame, modified sequence

and with signal peptide

<400> 6
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gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct      60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct     120
gccctggctt caggaggctg gcgccgtgat ggcttacagg aaacgtggag cccgccgtga     180
ggctaatatt aataataatg acagaatgca ggagaaagat gacgagaaac aggatcagaa     240
caatagaatg cagctgtctg ataaagtgct ttcaaagaaa gaggaagtcg tcaccgacag     300
tcaggaagaa attaaaattg ctgatgaagt gaagaaatcc acgaaagaag aatctaaaca     360
gctccttgaa gttctgaaaa caaaagaaga gcaccagaaa gagatccagt atgaaattct     420
ccagaaaacg attccaacat ttgaaccaaa agagtcaatc ctgaaaaaac tcgaggatat     480
caaacccgaa caggcgaaga agcagactaa gctgtttaga attttgaac ccagacagct     540
cccaatctat agagctaatg gcgaaaaaga gctgcgtaac agatggtatt ggaagctgaa     600
gaaagatact ctgccagatg gagattatga tgttagaaa tactttctga atctctatga     660
tcaggttctt actgaaatgc cagattatct cctcctgaaa gatatggcag ttgaaaataa     720
gaatagcaga gatgccggaa aagttgttga ttctgaaaca gcaagtatct gtgatgctat     780
ctttcaagat gaggaaacag aaggcgcagt gagaagattc attgccgaga tgagacagcg     840
cgtgcaggct gacagaaacg ttgtcaatta cccatcaatt ctgcatccaa tcgattacgc     900
ttttaatgag tattttctcc agcaccagct cgttgaacca ctgaataatg atattatctt     960
caattacatt cctgaaagga ttaggaatga cgttaactat atccttaata tggacagaaa    1020
tctgccatca acagctagat atattagacc taatctgctg caggacagac tgaatctcca    1080
tgacaatttt gaatccctgt gggatacaat cacaacttca aactatattc tggcaagatc    1140
cgtcgtgcca gatctcaagg aactggtttc aaccgaagct cagattcaga aaatgtcaca    1200
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gactgtcgtg ccaaatgaca tgttcattag ggaatcactg gttgcatgtc agctggctat    1440
cgtgaataca attatctatc cagcgttcgg aatgcagaga atgcattata gaaacggaga    1500
cccacagaca ccatttcaga ttgcagaaca gcagatccag aattttcagg tggctaattg    1560
gctgcatttt gtcaacaaca atcagtttag acaggtcgtt attgatggcg tgctcaatca    1620
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gcagctctca agacagcagt ttccaacaat gcctgttgat tataagaggt caatccagcg    1740
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ttcaaattat aatgaaagaa ttaatgatgc agtggccatt atcactgcag ctaatagact    2040
gaatctgtat cagaaaaaga tgaaggcaat tgttgaagat tttctcaaaa gactgcatat    2100
tttcgatgtc gctagagttc cagatgatca gatgtataga ctcagggata gactcagact    2160
gctcccagtg gaagtcagaa gactggatat tttaatctc atcctgatga acatggatca    2220
gattgaacgc gcatcagata aaattgccca gggcgttatt attgcttacc gcgatatgca    2280
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cctgaataat cagccagtgg cgctggttgg agctcttcca tttgttacag acagctcagt    2460
catttccctc atcgctaagc ttgacgctac agttttgcc cagattgtta aactcaggaa    2520
agttgatacc ctgaaccaa tcctctataa aattaattca gatagcaatg acttttacct    2580
cgttgccaac tatgattggg tgcctacttc aaccacaaaa gtctataagc aggttccaca    2640
gcagtttgat ttcagaaatt ccatgcatat gctgacatca aatcttactt tcactgttta    2700
ctcagatctg cttgcattcg tgagcgccga tacagtcgaa cctatcaatg cagttgcatt    2760
tgataatatg cgcatcatga acgagctgta agcgcgc                             2797
```

<210> 7
<211> 783
<212> DNA
<213> Porcine rotavirus

<220>
<223> VP4 gene for capsid protein, partial cds

<400> 7

```
aatctttctg acgaaattca agatattgga tcagctaagt cgcaggatgt tactataaat        60
cctggtccat tcgcacaaac aggttacgca ccagttaatt ggggagcagg tgagactaat       120
gactccacaa ctgtcaagcc attattagat ggtccggacc aaccaaccac tttcaaccca       180
ccaacaagct attggatatt acttgcgcca actgtagagg gcgtaattat ccaaggaaca       240
aacaatatcg atagatggtt ggctactata ctaattgaac caaacgtgca agcaactaat       300
agaatataca atcctttttgg tcagcaagaa actttatcgg ttgaaaatac ataccagaca       360
caatggacgt tcattgttgt aagtaaaact acactagctg gaagttatac acagcatgga       420
ctattgctct ctacaccaaa ctcatacgct gtaatgggat tcagcggtag aatatataca       480
tataatggaa ccacgccaaa cgcagcaaca ggatactatt cagctactga ctatgacaca       540
gtaaatatga catcattttg tgactttttac attataccaa gaaatcaaga agaaaaatgt       600
actgagtata tcaatcacgg attacctccc atacaaaata cgaggaatgt tgtgccagta       660
tccttatcgg ctagagagat agtgcacaca agagctcaag ttaatgaaga tattgttgtt       720
tcaaaaactt cactttggaa agaaatgcaa tataacagag acataaccat aagattcaat       780
ttt                                                                       783
```

```
<210> 8
<211> 799
<212> DNA
<213> Human rotavirus

<220>
<223> P1B VP4 gene, partial cds

<400> 8
ccgattcata ttcagtagac ttgcatgatg aaatagaaca gattggatca gagaaaactc        60
aaaatgtaac gataaatcca ggtccatttg cacagactag atatgctcca gttaattggg       120
gacatgggga gattaatgat tcaactatag tggaaccagt tttagatggt ccttatcaac       180
ccactacgtt caaaccacct aatgattatt ggctacttat tagctcaaat acagatggag       240
tagtttatga aagtacaaat aatagtgact tttggacagc agttatcgct gttgaaccac       300
atgttagtca aacaaataga caatatattt tatttggtga aaataagcag tttaatatag       360
aaaataattc agataaatgg aaattttttcg aaatgttcaa aggtagtagt cagggtgaat       420
tttctaatag acgaactcta acttctaata atagactcgt aggaatgcta aaatatggtg       480
gaaaagtatg gacatttcat ggtgaaacgc caagagccac tactgatagg tcagatactg       540
cggatttaaa taatatatca attataattc attcagagtt ttatatcatt ccaagatctc       600
aagaatctaa atgtaatgag tatattaata atggtttgcc accaattcag aatactagga       660
acgtagttcc attatctcta tcatccagat ctattcaata taggagagca caagttaatg       720
aagatattac aatttcaaaa acttcattat ggaaggaaat gcaatgtaat agagatatta       780
taataagatt taaatttgg                                                     799
```

```
<210> 9
<211> 875
<212> DNA
<213> Human rotavirus

<220>
<223> P3 truncated VP4 protein gene, partial cds

<400> 9
tcgctcattt atagacagtt actatcaaac tcatatgtta caaacatctc tgacgaaatt        60
aatgaaattg gaactaaaaa agcaactaac gttactgtta atccaggggcc attcgcacaa       120
acgggatatg cgcctgtcga ctggggacat ggtgaattgc ctgactctac attagtgcaa       180
ccaactcttg atggtccata ccaacccact tcacttaatt tgccagtcga ttattggatg       240
ttaattgcgc ctactagaga agggaaagtt gctgaaggta cgaatactac tgacagatgg       300
ttcgcttgtg tactagttga gccaaatgtg caaaatacac aaaggcaata cgtattagat       360
gggcgaaatg tccaattaca tgtctcaaac gattcaagta cttcgtggaa atttatatta       420
ttcattaaat tgacgcccga cggaacgtac actcaatact caaccttgtc aacaccgcat       480
aagttatgcg cgtgaatgaa aagagataac agagtatact ggtatcaagg aacgacaccg       540
aacgcatcag agagctatta cttgacaata aacaatgaca acagcaacgt ttcaagtgac       600
gctgaattcc atttgatacc gcaatcgcag actgccatgt gtacacaata tataaacaat       660
```

```
ggtttaccac caattcagaa tacaaggaat attgtaccag taaatattac atctagacag    720
attaaagaca taagagctca gatgaatgaa gacatagtga tatcaaaaac ttcgctatgg    780
aaagaaatgc aatataatac agatataatc attagattta aatttgctaa ttcaataatc    840
aaatcaggtg ggctaggtta taaatggtcc gaaat                              875
```

<210> 10
<211> 1194
<212> DNA
<213> rotavirus

<220>
<223> VP6 strain RF open reading frame

<400> 10
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atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa    1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt    1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat    1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```

<210> 11
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 11
```
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa     60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact    120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat    180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg    240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg    300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca    360
ggcattaaat ttaaaagaat aaattttgac aattcatcag aatacataga gaactggaat    420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat    480
tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg    540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac    600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca    660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca    720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
```

```
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta      960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa     1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt     1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat     1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```

<210> 12
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 12
```
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa       60
ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact      120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat      180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg      240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg      300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca      360
ggcattaaat ttaaagaat aaattttgac cagtcatcag aatacataga gaactggaat      420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat      480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg      540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac      600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca      660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca      720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa      780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc      840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg      900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta      960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa     1020
acaatgctag caaatgtgac atctgttaga caagaatacg cgataccagt tggaccagtt     1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat     1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga          1194
```

<210> 13
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 13
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ggcacattat actccaatgt aagtgatcta attcaacaat ttaatcaaat gataattact      120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat      180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg      240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg      300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca      360
ggcattaaat ttaaagaat aaattttgac aattcatcag aatacataga gaactggaat      420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat      480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg      540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac      600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca      660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca      720
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa      780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc      840
```

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atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg   900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta   960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa  1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt  1080
tttccaccag gtatgaattg gactgatttg atcactaact attcaccatc tagagaggat  1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

<210> 14
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 14
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ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact  120
atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat  180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg  240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg  300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca  360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat  420
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tcagcttcat tcacgttgaa cagatcacag cccgctcatg ataacctgat gggtacgatg  540
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gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa  780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc  840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg   900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta   960
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acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt  1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat  1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

<210> 15
<211> 1194
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence

<400> 15
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atgaatggaa atgagttcca aactggagga attggtaatc taccgattag aaattggaat  180
tttgattttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcgaaacg  240
gcccgcaata caattgatta ttttgtagat tttgtagata atgtatgtat ggacgaaatg  300
gttagagaat cacaaagaaa tggaattgca ccacaatcag attcacttat aaagttatca  360
ggcattaaat ttaaaagaat aaattttgac cagtcatcag aatacataga gaactggaat  420
ttgcaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat tttcccttat  480
tcagcttcat tcacgttgaa cagatcacaa ccggctcatg ataacttgat gggtacgatg   540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac  600
gcgccagcta atacgcaaca atttgagcat attgtacagc ttcgaagggt gttgactaca  660
gctacaataa ctcttttacc agatgcagaa agatttagtt ttccaagagt gattacttca  720
```

```
gctgacggag cgactacatg gtacttcaat ccagtgattc ttagaccaaa taacgttgaa    780
atagagtttc tactaaacgg gcagataata aatacttacc aagcaagatt tggaacgatc    840
atagctagaa attttgatac aattagattg tcatttcagt tgatgagacc accaaatatg    900
acaccagcgg tagcggcgtt atttccaaat gcgcagccat ttgaacatca cgcaacagta    960
ggactcacgc ttagaattga atctgcagtt tgtgaatcag tacttgccga cgcaagcgaa   1020
acaatgctag cacaagtgac atctgttaga caagaatacg cgataccagt tggaccagtt   1080
tttccaccag gtatgcagtg gactgatttg atcactaact attcaccatc tagagaggat   1140
aacttgcagc gtgtatttac agtggcttcc attagaagca tgcttgtcaa atga         1194
```

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<210> 16
<211> 1348
<212> DNA
<213> Artificial sequence

<220>
<223> VP6 strain RF open reading frame, modified sequence,
      with signal peptide

<400> 16
gcgcgcggat cccaaggccc aactccccga accactcagg gtcctgtgga cagctcacct     60
agccgccatg gctccaggct cccggacgtc cctgctcctg gcttttgccc tgctctgcct    120
gccctggctt caggaggctg gcgccgtgat ggatgtcctg tactccctct caaaaactct    180
taaagatgct agagacaaaa ttgtcgaagg cacactgtac tcccaagtca gtgatctcat    240
tcagcagttt aatcagatga ttattactat gaatggcaat gagttccaga ctggaggcat    300
tggcaatctc cccattagaa attggaattt tgattttgga ctccttggaa caactctgct    360
caatctggat gctaactacg tcgaaacggc ccgcaataca attgattatt ttgtcgattt    420
tgtggataat gtctgtatgg acgaaatggt tagagaatca cagagaaatg gcattgcacc    480
acagtcagat tcacttatca agctctcagg cattaaattc aaacgcatta ttttttgacca   540
gtcatcagaa tacatcgaga actggaatct gcaaaataga agacagagaa cgggattcac    600
atttcataaa ccaaacattt tcccttattc cgcttccttc acgctccagc gctcacagcc    660
cgctcatgat aacctgatgg gcacgatgtg gctcaatgct ggctcagaaa tccaggtcgc    720
tggattcgac tactcatgtg caattaacgc cccagctaat acgcagcagt ttgagcatat    780
tgtgcagctt agaagggtgc tcactacagc tacaatcact cttctgccag atgcagaaag    840
attcagtttt cccagagtga ttacttcagc tgacggagct actacatggt acttcaatcc    900
agtgattctt agaccaaata acgttgaaat tgagtttctg ctcaacggac agatcattaa    960
tacttaccag gcaagatttg gaacgatcat cgctagaaat tttgatacaa ttagactgtc   1020
atttcagctc atgagaccac caaacatgac accagccgtc gctgccctct ttccaaatgc   1080
tcagccattt gaacatcacg caacagtggg actcacgctt agaattgaat cagcagtgtg   1140
tgaatcagtc cttgccgacg caagcgaaac aatgctggca caagtgacat ctgttagaca   1200
ggaatacgcc attccagttg gaccagtttt tccaccagga atgcagtgga ctgatctgat   1260
cactaactat tcaccatcta gagaggataa cctccagcgc gtgtttacag tggcatccat   1320
tcgcagcatg cttgtcaaat gagcgcgc                                     1348
```

```
<210> 17
<211> 1061
<212> DNA
<213> Human rotavirus

<220>
<223> G9 strain 97CM113 outer capsid protein (VP7)

<400> 17
ggctttaaaa gagagaattt ccgtctggct agcggttatt tccttttaat gtatggtatt     60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa    120
tcactaacta gtgcgatgga cttcataatt tatagatttc ttttacttat tgttattgca    180
tcaccttttg ttaaaacaca aaattatgga attaatttac cgatcactgg ctccatggat    240
acagcatatg caaattcatc acagcaagaa acattttttga cttcaacgct atgcttatat    300
tatcctacag aagcgtcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa    360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata caccgatatc    420
```

```
gcttcattct caattgatcc gcaactttat tgtgattata atgttgtact gatgaagtat    480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta    540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg    600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga    660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta    720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt    780
acaattagga attgtaagaa gttgggacca agagaaaatg tagcgattat acaagtcggt    840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg    900
atgcgagtaa attggaagaa atggtggcaa gttttctata cagtagtaga ttatattaat    960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat   1020
agggtttgat atatcttaga ttagaattgt atgatgtgac c                       1061
```

<210> 18
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18
```
ggctttaaaa gagagaattt ccgtctggct agcggttagc tcctttttaat gtatggtatt    60
gaatatacca caattctaac ctttctgata tcaatagttt tattgaacta tatattaaaa   120
tcactaacta gtgcgatgga ctttataatt tatagatttc ttttacttat tgttattgca   180
tcatcttttg ttaaaacaca aaattatgga attaattttac cgatcactgg ctccatggat   240
acagcatatg caaattcatc acagcaagaa acatttttga cttcaacgct atgcttatat   300
tatcctacag aagcatcaac tcaaattgga gatacggaat ggaaggatac tctgtcccaa   360
ttattcttga ctaaagggtg gccaactgga tcagtctatt ttaaagaata cactgatatc   420
gcttcattct caattgatcc acaactttat tgtgattata atgttgtact gatgaagtat    480
gattcaacgt tagagctaga tatgtctgaa ttagctgatt taattctaaa tgaatggtta    540
tgtaacccaa tggatataac attatattat tatcagcaaa cagatgaagc gaataaatgg    600
atatcgatgg gacagtcttg taccataaaa gtatgtccat tgaatacgca gactttagga    660
ataggttgta ttaccacaaa tacagcgaca tttgaagagg tggctacaag tgaaaaatta    720
gtaataaccg atgttgttga tggtgtgaac cataaacttg atgtgactac aaatacctgt    780
acaattagga attgtaagaa gttaggacca agagaaaatg tagcgattat acaagtcggt    840
ggctcagatg tgttagatat tacagcggat ccaactactg caccacaaac tgaacgtatg    900
atgcgagtaa attggaagaa atggtggcaa gttttctata cggtagtaga ttatattaat    960
cagattgtgc aagttatgtc caaaagatca cggtcattaa attcagcagc tttttactat   1020
agggtttgat atatcttagg ttagaattgt atgatgtgac ca                      1062
```

<210> 19
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09004 outer capsid protein (VP7) gene,
      complete cds

<400> 19
```
ggctttaaaa gagagaattt ccgtctggct agcggttagc tcctttttaat gtatggtatt    60
gaatatacca cagttttaac ctttttgata tcagttatat tgttgaatta cgtactcaaa   120
tccttaacta gataatggga ctttattatt tacagatttc ttttaattat agttatatta   180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac   240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat   300
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac actttctcag   360
ctatttttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt   420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat    480
gacgctacac tgcaactgga catgtccgaa ctagcagatt tgttacttaa tgagtggtta    540
```

```
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg   600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga   660
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta   720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt   780
acgattcgaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt   840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg   900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat   960
caaattgtgc aagcaatgtc caaagatcg agatcattaa attctgctgc attttactac  1020
agagtataga tatagcttag attagaattg tatgatgtga cc                    1062
```


```
<210> 20
<211> 981
<212> DNA
<213> Human rotavirus

<220>
<223> G12 VP7 gene for capsid protein, complete cds


<400> 20
atgtatggta ttgaatatac cacaattcta acctttttga tatcaattgt tctattaaat    60
tatatattaa aatcaataac taatataatg gactttatca tatatcggtt tttactaata   120
gttgttgtca tgctgccatt tattaaagct caaaattatg gaataaatct tccaataaca   180
ggttctatgg ataccgcata tacaaactcc acacaacaag agaatttat gacttccact    240
ttatgcttat attatccaag ttcagtcacg actgaaataa ctgaccccga ttggacgaac   300
acactgtcac aacttttcat gactaaagga tggccgacaa attccgtcta cttcaagagt   360
tatgctgata tagcgtcctt ctctgtagat ccgcagttat attgtgatta caatattgtg   420
ttagtacagt accaaaattc attagcgttg gatgtctcag aacttgctga tttaattttta   480
aatgaatggt tatgtaatcc gatggacgta acgttgtact attatcaaca aacagatgaa   540
gcgaataaat ggatatcaat gggagaatca tgtacggtta aagtatgtcc cttaaatacg   600
caaactttag gaattggatg tacaacaacc gacgtcacaa catttgaaga ggtagcaaac   660
gcggaaaaat tagtaataac tgacgtcgtg gatggagtca atcacaagat taatattaca   720
atgaatacat gtactatacg gaattgcaaa aagttaggac cgagggaaaa tgtagcaatt   780
atacaagtag gtggttctga cgtcatagac ataacagcag atccaacaac gatcccacaa   840
actgaaagaa tgatgcgaat aaattggaaa aaatggtggc aggtgtttta taccgtagta   900
gattacataa atcaaatagt tcaggtaatg tccaaacgat caagatcact aaattcagct   960
gcttttttact acagaatttta g                                           981
```


```
<210> 21
<211> 1062
<212> DNA
<213> Human rotavirus

<220>
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene,
      complete cds

<400> 21
ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt    60
gaatatacca cagtttttaac cttttttgata tcagttatat tgttgaatta cgtactcaaa   120
tccttaacta gaataatgga ctttattatt tacagatttc ttttaattat agttatatta   180
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac   240
acaccatata cgaactcaac gcgagaggaa gtattcctaa cttcgacttt atgtttgtat   300
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac actttctcag   360
ctattttttaa tcaaaggatg gccaacagga tctatttatt ttaaagatta tactgatatt   420
gcctcgtttt cagtcgatcc acaactgtat tgtgattata atttggtatt aatgaaatat   480
gacgctacac tgcaactgga catgccgaa ctagcagatt tgttacttaa tgagtggtta   540
tgtaatccta tggatattac tttgtattat tatcaacaaa ctgatgaggc aaataaatgg   600
atttcaatgg gatcatcttg tactataaag gtatgtccac taaatacgca aacattagga   660
```

```
attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacagc tgaaaaatta       720
gtgattactg acgttgtaga tggagtcaat cataaattga acgtgacaac aaacacttgt       780
acgattagaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggtaggt       840
ggcccagatg tgcttgacat aacagctgat ccaacgacaa tgccacaaac agaaagaatg       900
atgcgagtga attggaagaa atggtggcaa gtgttttata caatagttga ctacgtgaat       960
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac      1020
agagtataga tatagcttag attagaattg tatgatgtga cc                          1062
```

<210> 22
<211> 7
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 22

Arg Thr Pro Lys Ile Gln Val
1               5


<210> 23
<211> 6
<212> PRT
<213> Artificial sequence

<220>
<223> HIV epitope

<400> 23

Glu Leu Asp Lys Trp Ala
1               5